REMARKS

Claims 1-57 are pending in the application.

Claims 1-3, 6-32 and 35-57 stand rejected.

Claims 4, 5, 33 and 34 stand objected to.

Claim 30 has been amended.

Formal Matters

Claim 30 has been amended to address the Examiner's concerns. Applicants express appreciation to the Examiner for the indication of allowability of claim 4, 5, 33, and 34. However, at this time Applicants choose to defer amendment of these claims until they have had the opportunity to traverse the Examiner's rejections.

Rejection of Claims under 35 U.S.C. §103

Claims 1-3, 6-32 and 35-57 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Jones et al., U.S. Patent No. 5,812,844 (Jones) in view of Srinivasan, U.S. Patent No. 5,991,812. Applicants respectfully traverse this rejection. Claim 1 clearly distinguishes over any combination of Jones and Srinivasan because both references fail to teach various features of claim 1. Furthermore, neither reference provides any motivation for combining their disclosures to provide the features of the claimed invention.

Neither Reference Teaches the Features of Claim 1

At least one way that claim 1 distinguishes over any combination of Jones and Srinivasan is by reciting an "element specific selection adjustment ... wherein the element-specific selection adjustment ... is borrowed virtual time." The Office action notes that "Jones does not explicitly

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teach 'assigning one of the plurality of elements to use the resource for a second period-of-use responsive to the measure-of-use and element-specific selection adjustment for each element in the plurality of elements wherein the element-specific selection adjustment for the each element in the plurality of elements is borrowed virtual time.'" Page 3, line 19 to page 4, line 2. Srinivasan does not remedy this deficiency of Jones.

The Office action states that "Srinivasan teaches assigning one of the plurality of elements to use the resource for a second period-of use responsive to the measure-of-use and an element-specific selection adjustment for each element in the plurality of elements (col. 3, lines 5-39) wherein the element-specific selection adjustment for the each element in the plurality of elements is borrowed virtual time (col. 7, lines 1-33)." Page 4, lines 3-7. However, the Office action does not point to, and Applicants are unable to find, anything within the cited portions of Srinivasan (i.e., col. 3, ll. 5-39 and col. 7, ll. 1-33) that teaches borrowed virtual time.

Column 3, lines 5-39 discusses a queue selection method that "selects one of [a] plurality of queues based on the virtual time," and indicates that "virtual time is incremented by a pre-computed amount." In column 7, lines 25-39, Srinivasan elaborates on how the virtual time is calculated:

> [T]he output queue Q_j selected for transmission is the . . . queue that has the least value for TVQ_j. . . . [T]he queue virtual time TVQ_j of the selected queue increments each time its [sic] is selected for transmission. Preferably, the increment by which the queue virtual time TVQ_j advances is based on the length of the packet $P_{i,j}$ being transmitted and the bandwidth B_j of the selected queue. The incremental value may be calculated using the following equation: $\Delta TVQ_j = l_{i,j} / B_j$.

The cited portions of Srinivasan mention two variables that are used to calculate queue virtual time: queue bandwidth (B_j) and length of packet ($P_{i,j}$). Applicants note that neither bandwidth nor packet length is comparable to virtual time, much less *borrowed* virtual time. Therefore, both B_j and $P_{i,j}$ fail to read on borrowed virtual time.

With respect to queue virtual time (TVQ_j), nothing in Srinivasan indicates that queue virtual time is *borrowed* virtual time. In fact, Srinivasan's discussion of queue virtual time shows that queue virtual time is not borrowed virtual time. The following discussion of the meanings of borrowed virtual time and queue virtual time illustrates their differences.

The meaning of borrowed virtual time is clear. Claim 1 recites, "said element-specific selection adjustment for said each element in said plurality of elements is borrowed virtual time." Applicants make two points with respect to the meaning of borrowed virtual time. First, as claim 1 explicitly recites, borrowed virtual time is an "element specific selection adjustment." Second, the phrase "borrowed virtual time" indicates that the borrowed virtual time of an element is "the virtual time borrowed by the element." Specification, page 12, lines 21-22.

The meaning of "queue virtual time" is also clear. "[T]he queue virtual time TVQ_j of the selected queue increments each time its [sic] is selected for transmission. Preferably, the increment by which the queue virtual time TVQ_j advances is based on the length of the packet $P_{i,j}$ being transmitted and the bandwidth B_j of the selected queue." Column 7, lines 33-41. Thus, queue virtual time is related to packet length and bandwidth, not borrowed virtual time.

Srinivasan uses queue virtual time in the following manner: "The output queue Q(j) selected for transmission is the . . . queue that has the least value for TVQ(j) [queue virtual

time]." Column 7, lines 26-28. The use of queue virtual time to select a queue does not show that queue virtual time is borrowed virtual time. Borrowed virtual time is the "virtual time borrowed by an element" and "an element specific selection adjustment"—queue virtual time is neither of these.

Queue virtual time is not virtual time borrowed by an element. As previously mentioned, queue virtual time is merely a function of B_j and $P_{i,j}$, neither of which have anything to do with borrowing virtual time. *See* Srinivasan, Equation 4. As a function of B_j and $P_{i,j}$, queue virtual time is a weighted measure of queue use, not a representation of virtual time borrowed by an element. Since queue virtual time is not calculated using borrowed virtual time and cannot itself be considered borrowed time, Applicants do not see any way in which queue virtual time may be considered virtual time borrowed by an element.

Queue virtual time is not an element-specific selection adjustment. The queue that has the least value for queue virtual time is the queue selected for transmission. If a queue is selected based only on queue virtual time, then how could the queue virtual time also be an element specific selection *adjustment*? Applicants submit that queue virtual time cannot be considered as, and Srinivasan does not teach, an element specific selection adjustment.

Therefore, queue virtual time is neither virtual time borrowed by an element nor an element specific selection adjustment. Accordingly, queue virtual time is not borrowed virtual time (which is both an element specific selection adjustment and the virtual time borrowed by an element.)

Applicants recognize that queue virtual time and borrowed virtual time both use the terminology "virtual time"; however, there is nothing inherent in the meaning of virtual time that

suggests virtual time is *borrowed* virtual time. Srinivasan defines virtual time, as used within Srinivasan's disclosure, in column 5, lines 59-61: "There are also state variables whose values are defined in 'virtual time' units. Unlike the system clock TR, virtual time ticks are preferably not fixed time intervals." Srinivasan's use of the term "virtual time" has nothing to do with borrowing virtual time from an element or using virtual time as an element specific selection adjustment. Accordingly, Srinivasan's disclosure of virtual time does not teach borrowed virtual time.

Therefore, claim 1 clearly distinguishes over Srinivasan and Jones because neither reference shows, teaches or suggests "an element specific selection adjustment ... [that is] borrowed virtual time." Since both Srinivasan and Jones fail to teach at least one feature recited in claim 1, Applicants request withdrawal of the rejection under 35 U.S.C. § 103(a). Applicants further traverse the rejection under 35 U.S.C. §103(a) because of a lack of motivation to combine Srinivasan and Jones.

Lack of Motivation to Combine the References

Neither Srinivasan nor Jones offers any motivation for combining their disclosures to provide the features of claim 1. The Office action states, "It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Srinivasan and Jones because Srinivasan's teachings would have provided a much greater flexibility for resource scheduling." Neither reference mentions the desirability of providing "greater flexibility for resource scheduling." Furthermore, it is entirely unclear how a combination of Srinivasan and Jones would provide "much greater flexibility for resource scheduling." Perhaps one reason that the references fail to set forth motivation to combine their

disclosures is that a combination of the references does not provide any advantages over either reference taken alone.

Adding the elements of Srinivasan to the system of Jones does not provide the advantages of claim 1. Jones teaches selecting the thread having the earliest restart time, and Srinivasan teaches selecting a queue based on queue virtual time. One of ordinary skill in the art would not recognize any advantage of, or logical reason for, selecting a thread based on both Jones' restart time and Srinivasan's queue virtual time. This is because queue virtual time is not relevant to Jones' thread selection process.
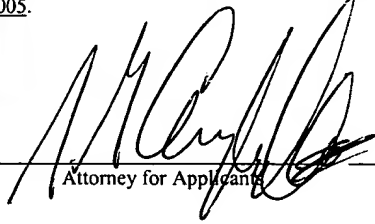
Furthermore, Jones selects a thread based on a single variable, restart time, and Srivansan selects a queue based on a single variable, queue virtual time. In other words, both references teach selecting an element based on only a single variable. In contrast, claim 1 recites "assigning one of said plurality of elements ... responsive to said measure of use *and* ... borrowed virtual time." (Emphasis added). Thus, claim 1 clearly distinguishes over any combination of Jones and Srinivasan by reciting "assigning one of said plurality of elements ... responsive to ... borrowed virtual time."

Applicants respectfully request withdrawal of the rejection of claim 1 under 35 U.S.C. 103(a) because neither Jones nor Srinivasan teach the features of claim 1, and because one of ordinary skill in the art would find no motivation to combine Jones and Srinivasan. Applicants submit that the foregoing arguments apply with equal force to independent claims 30 and 55. Therefore, Applicants submit that independent claims 1, 30 and 55, as well as claims 2-29, 30-54 and 56-57, which depend from claims 1, 30 and

55, are allowable for at least the foregoing reasons. Accordingly, Applicants submit that

claims 1-57 are in condition for allowance.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be

in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues

remain that might be subject to resolution through a telephonic interview, the Examiner is invited

to telephone the undersigned at 512-439-5084.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on October 27, 2005.

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